International Journal of Business
Management & Research (IJBMR)
ISSN(P): 2249-6920; ISSN(E): 2249-8036
Vol. 7, Issue 2, Apr 2017, 67-74

TRANS STELLAR
•Journal Publications •Research Consultancy

A STUDY ON THE PROBLEM CONSCIOUSNESS OF QUALITY MANAGEMENT IN CHINA

YANG WANG, ABULIMITI MAYILA, WENZHEN SHI & TAKASHI KONDOH

Graduate School of Business Administration, Aichi Institute of Technology, Japan

ABSTRACT

Japanese Total Quality Management (TQM) is famous all over the world, and has especial impact on the Chinese factory. China has been introduced and carried out the technique and management of Japanese TQM. But the level of quality of production is not satisfactory in China. Although it has been implemented the same techniques and philosophy of quality management, there still is a gap of quality of production between Japan and China. The purpose of this study is to investigate the reasons why the production of quality is not good in China from the view of problem consciousness. The authors conducted a questionnaire targeting Chinese employees working in China's manufacturing industry and analyzed the factors that impacted the problem consciousness of quality management. As the result, we revealed that the problem consciousness of the employees in China's manufacturing industry is the cause of the gap.

KEYWORDS: QC, TQM, Consciousness & Manufacturing

Received: Feb 12, 2017; **Accepted**: Apr 03, 2017; **Published**: Apr 06, 2017; **Paper Id.**: IJBMRAPR20178

Original Article

INTRODUCTION

Japanese Total Quality Management (TQM) is one of the world-famous system due to the high quality production and industrial production in Japan(YajunZhong, 2006; Mita Masashi, 1987). After the war, Japanese Total Quality Management was known as the beginning with "Deming award"(Mita Masashi,1987) "SQC" , "JIS" , through the TQC , TQM (Kazuo Ozeki,1992). And it has been applied to the high-quality industrial products, household appliances, automobiles, precision machinery all over the world. Japanese Total Quality Management has made impactedin Europe, the United States and Asia, in particular Chinese factory because of globalization(Takeshi Nakajo,2008).

However, the quality problems of products in China have been frequently pointed out Despite all of the Techniques of Japanese TQM, management, philosophy, spirit, etc. that are introduced and implemented in China, the level of quality of the products are still not high(Yang Wang,2016). Even though China has developed a quality management, such as techniques and philosophy of the same quality management, there is still a difference in the quality of the product during the day. The employee's problem consciousness of the quality management has been pursued as the reason (Hiroyuki Fukano,1991). The effort of consciousness of the employees' is considered to be different for the quality management from employees to management elements, it would be essential to the resolution of quality problems in China.

Therefore, the purpose of this study is to understand how the problem consciousness of the employees who are working in the manufacturing industry in China affected the quality of the products. A questionnaire survey of the factors that affects the quality of the problem awareness of employees in China's manufacturing industry was conducted. The authors analyzed and discussed the results of the survey in order to look for ways to

improve problem consciousness of employees in this paper.

CHARACTERISTIC OF THE JAPANESE TOTAL QUALITY MANAGEMENT

The methods and philosophy of quality management has been introduced from the United States. But Japanese TQM is different from American quality control. Characteristics of Japanese TQM are: QC (quality control) of full participation, diagnosis and its application of QC, sales and services throughout quality assurance from planning to development; QC Circle activities, such as education of QC and training, the development and utilization of QC techniques, are expanded from manufacturing to other industries, such as the nationwide promotion of QC (Ikuo Kusaba,1997;Eizaburo nishibori,2000). Problem consciousness about the quality management of all the participation is essential. It is important to improve the QC awareness of everyone(Ito Makotoichi, 2008) .

On the other hand, TQM does not appear to have the practice effect of quality management in China, and the level of quality is still not high Incorporating such methods and philosophy of the same quality control, however, the quality of the product is still different between China and Japan. One of the reasons is the different level of problem consciousness about quality management of employees(Takeshi Nakajo, 2008). It is essential to resolute the problem consciousness about quality management of the products in employees and know how the factors affect the problem consciousness in China.

PROBLEM CONSCIOUSNESS STRUCTURE MODEL

Problem consciousness is the subjective perceptions, ideas and perspective to the objects and a subjective view on the current state of objects (Ito Makotoichi,2008). Awareness of the problem connects deeply with human life. Awareness ofthe production quality is affected by research and development, procurement of raw materials, product design, production technology, standardization, and responsibility, motivation, satisfaction, trust, relationships, spirit, philosophy(Wenzhen Shi,2015) . The authors studied the production quality from the view of problem consciousness about the human way of life, because the awareness of the quality management is differed by each department in the production processes in this study.

A standard perspective is necessary to compare the problem consciousness about the human way of life because the subjective awareness is different with everyone. Confucianism has had a deep impact not only in China, but also in Japan, South Korea, Vietnam and Singapore in Asian for 2,500 years (Burton Watson, 2007;Li, Zhehou.2004). Confucius have proposed the method of problem-solving, focusing on the reality of everyday life, and the becoming a man of noble character (junzi), in order to solve the human social problems. By the definition of the problem cap between the target and the current situation, Confucius itself is one of the problem-solving system (Wenzhen Shi, 2015). Confucius problem consciousness is said to be one of the standard human awareness model (Wenzhen Shi, 2015). Confucius problem consciousness model will be applied to the quality management in this study.

QUESTIONNAIRE SURVEY

In order to understand the awareness of quality management, in this study we conducted a questionnaire survey of employees working in China's manufacturing industry. This research conducted in eight companies of the manufacturing industry in China as shown in Table 1. Investigation period is from March 2016 until May 2016. As the investigation method, we distributed a questionnaire survey of 1,000 parts to all employees. The recovered enable number of responses is 419 parts, the effective response rate was 42%. It should be noted that the authors explained the purpose of this study,

not touse the results of this survey to comply with anonymity and privacy.

Table 1: Company Type

Company	Number	Percentage
1 furniture manufacturing	63	15.0
2 electronic components	44	10.5
3 food processing	12	2.9
4 electronic components	32	7.6
5 appliance parts	62	14.8
6 air cleaner	55	13.1
7 LED lighting manufacturing 1	88	21.0
8 LED lighting manufacturing 2	63	15.0
Total	**419**	**100.0**

In the problem awareness survey, based on Confucius problem consciousness model, centered on the perceptions, ideas, views, way of life that related to human nature. Survey items were designed to investigate the contents. Confucius problem consciousness model consists of eleven items: the goal "Zhi 志", satisfaction "Le 楽", responsibility "Ren 仁", courtesy and manners "Li 礼", trust "Xin 信", correction "Guo 過", information and knowledge sharing " Xue 学", skills and tacit knowledge "Zhi 知" , the future and continuity "Shi 時" , forgiveness " Shu 恕".

Based on the Confucius problems conscious model, the contents of the specific questions consisted with 12 questions: problem consciousness (Do you think the quality of the products of the company is connected with work); annual goals of the company (Do you know company's annual goal); satisfaction with the current work (Are you comprehensively satisfied with your current job); responsibility to work (Are you responsible for your work); attitude of colleagues and superiors(Do you give a colleagues and superiors of speech); trusting in colleagues and superiors(Do you trust your colleague or your boss), correcting yourself when you make a mistake(Do you make self reflectionswhen you make a mistake); training on the job (Will you want to participate in lecture / training at work); sharing the experience and expertise with colleagues(Will you share experience and expertise with colleagues); thinking about the future of the company(Do you think about the company's future); continuation of the work in the company (Will you continue to be employed by this company); thinking in the position of co-workers and superiors(Do you consider in the position of yourco-workers and boss) . The questions were given on a 5-point scale.

Based on the Confucius problems conscious model, problem consciousness (Do you think the quality of the products of the company is connected with your work) was the objective variable, and the eleven items was the explanatory variable. To verify the proposed Confucian problems conscious model, the authors also measured the effects on actual cooperation of the dependent variables in the model, using multiple regression analysis. During this analysis, all of the independent variables were analyzed using the forced-entry method to explain the factors impacting the dependent variables. The analysis was conducted using SPSS 19.0 for Windows.

ANALYZING THE RESULTS

Analyzing the Results of the Basic Attributes

In the survey results, the basic attributes of those surveyed were shown in Table 2. In the survey subjects of gender, men were 251 (60.5%) and women were 164 (39.5%). Men accounted for more than 60% in this company.

It can be seen that the participants in the survey who are less than 35 years old were60 percent with 204 people. The employees of these company were found to be young. In addition, 14.6% (61 people) of the staff had worked for less than one year, 45.6%(190 people) were more than 5 years. Employees that have a bachelor or a master's degree were more than 30%. The general staff accounted for 76.5 percent at 315 people. "Middle level management"; "Department heads"; "the chief of the company "and "the others" were less than 30%.

Analyzing the Result of Multiple Regression

For more information about the elements of impact of consciousness of quality problem, "product quality of the company whether or not connected with their work," was the dependent variable. The other eleven items were independent variables. The eleven items were carried out with multiple regression analysis. First of all, 12 questions to verify the absence of multicollinearity between the items and person correlation were used. High correlation 0.6 or more in between each question item was not observed from the result of the correlation analysis. Thus, It is considered that there is no suspected of multicollinearity .

Table 2: Description of Sample

Item	Contents	Frequency	Percentage (%)
sex	Man	251	60.5
	woman	164	39.5
	total	415	100.0
age	25 years old or less	60	14.4
	25-35-year-old	194	46.5
	36-45-year-old	115	27.6
	46-55-year-old	44	10.6
	56 year- old	Four	1.0
	total	417	100.0
A member Years	Less than a year	61	14.6
	1-5 years	190	45.6
	6-10 years	114	27.3
	11-15 years	40	9.6
	More than 15 years	12	2.9
	total	417	100.0
Educational qualification	Under junior high school	83	19.9
	high school	95	22.7
	Vocational school	105	25.1
	University	129	30.9
	Master	6	1.4
	total	418	100.0
Duties	staff	315	76.5
	Intermediate manager	30	7.3
	Department manager	35	8.5
	Company responsible person	6	1.5
	Other	26	6.3
	total	412	100.0

Further, in order to understand the elements of impact of awareness, multiple regression analysis of the forced-on method was used. The results of multiple regression analysis were shown in Table 3. The coefficient of determination ($R^{2)}$ is 0.371, and adjusted coefficient of determination ($R^{2)}$ is 0.353, describes 35.3 percent of the "whether the product quality of the company are connected with their work". It can be said to have come meaningfulness of the regression equation . The value of Durbin-Watson is close to 2 with 1.751, and there is no problem in independence of residuals in

each explanatory variable.

In addition, descriptive statistics were shown in Table 3. The average value of the problem consciousness, responsibility to work, trusting in colleague and superiors, correcting yourself, training on the job, sharing the experience and expertise with colleagues, continuation of working in the company, thinking in the position of co-workers and superiors were beyond 4. Thinking about the future of the company has become a 3 or less.

Table 3: Descriptive Statistics Result of Items

Item	Number	Average	SD
Do you think the product quality of the company is connected with work	412	4.289	1. 0471
Do you know company's annual goal	417	3.643	1.1156
Are you comprehensively satisfied with the current job	412	3.046	1.331
Are you responsible for work	417	4.41	0.9288
Do you give a colleagues and superiors of speech and attitudes anxious	419	3.811	1.2.960
Do you trust your colleague or your boss	417	4.216	0.9959
Is it to reflect on when you make a mistake	417	4.54	0.8372
Do you want to participate in lecture / training on work	416	4.425	0.9912
Do you share experience and expertise with colleagues	410	4.429	0.834
Do you think about the company's future	416	2.447	1.0538
Will you continue with this company	414	4.041	1.0534
Do you considered in the position of co-workers and boss	417	4.194	1.0323

The standardized coefficients (beta values) and probabilities of significance for the explanatory variables were -0.137 ($p < 0.01$) for "satisfaction with the current work"; 0.178 ($p < 0.01$) for "correcting yourself"; 0.120 ($p < 0.05$) for "sharing the experience and expertise"; 0.259 ($p < 0.01$) for "continuation of the work"; and 0.126 ($p < 0.05$) for "thinking in the position of co-workers and superiors" (Hirai Akiyo, 2012).

DISCUSSIONS

Employees of less than 25 years of age, and employees of less than five working years have exceeded 95% (table 2). The general staff is over 90% when viewed from the duties of the employees. In the Education, Junior High, High school and Vocational College of employees is greater than 70%. In contrast, employees that have the Bachelor's and Master's degree are 30%. Based on the basic attribute, it is evident that a group of weak, very young employees with little working experience are working in the eight companies.

Based on the results of multiple regression , factors that influencing the problem consciousness are satisfaction with the current work (whether you are satisfied with the overall of the current work), correcting yourself (if he is to reflect on when you make a mistake), sharing the experience and expertise (or to share with colleagues the experience and expertise), continuation of the work (or not to continue working in this company) and thinking in the position of co-workers and superiors (or think in the position of co-workers and superiors).

Table 4: Results of Multiple Variable Regression Analysis

Model Item	T	Sig	Beta
Do you know year goal of the company?	1.674	095	.076
Are you comprehensively satisfied with the current job?	-3.250	001	-.137
Are you responsible for work?	670	503	042
Do you give a colleagues and superiors of speech and attitudes anxious?	846	398	037
Do you trust your colleague or your boss?	- 3.44	731	-022
Is it to reflect on when you make a mistake?	2.836	005	178
Do you want to participate in lecture / training on work?	1.471	142	078
Do you share experience and expertise with colleagues?	2.086	038	120
Do you think about the company's future?	-874	383	-037
Will you continue with this company?	5.557	000	259
Do you think in the position of a colleague or a boss?	2.361	019	126

The beta value of the satisfaction with the current work (Are you comprehensively satisfied with the current job) is -0.137, describes the -13.7% of the problem consciousness model. It can be said that the problem consciousness of employees who satisfied with their current work is low. Low problem consciousness is low the awareness of the quality. And it can be said that there is no problem of low quality, and that they do not have the higher goals about the quality of the products. In particular, because there are a lot of young employees without adequate education. In addition, they do not have the crisis consciousness, and are satisfied with the current quality.

The beta value of correcting yourself when you make a mistake (Is it to reflect on when you make a mistake) is 0.178, that explains the 17.8% of the problem consciousness model. It is estimated that employees who have the higher problem consciousness, reflect on their mistakes of daily work.

Beta value of sharing the experience and expertise with colleagues (Do you share experience and expertise with colleagues) is at 0.120, that explains the 12.0 percent of the problem consciousness model. Therefore, employees who share their experiences and knowledge, have higher problem consciousness of the quality management. It is estimated to make a discovery-friendly environment of improving the level of the quality management.

The beta value of continuation of working in the company (Will you continue with this company) is 0.259. 25.9 percent to the problem consciousness model can explain. It can be explained if you want to continue to work, you have the awareness of the quality management.

Beta value of thinking in the position of co-workers and superiors (Do you considered in the position of co-workers and boss) is the 0.126, explains the 12.6% of the problem consciousness model. Therefore, it can be said that whom considers the perspective of their boss or colleagues, whom understands the problem they are facing.

As described above, because of the awareness of the quality of employees working in China's manufacturing industry, it can be said that it should have a sense of crisis to the employees, constantly correct the day-to-day work, share experience and knowledge among employees, improve the retention rate of employees, have a spirit of compassion, to improve the awareness of the quality of employees and to promote the Japanese Total Quality Management in Chinese companies.

CONCLUSIONS

Based on the survey results for employees working in China's manufacturing industry, it is clear that satisfaction with the current work, correcting yourself, sharing the experience and expertise, continuation of the work, and thinking in the position of co-workers and superiors have been found to affect the problem consciousness of the quality management of employees in China.

As the future challenges, promoting and disseminating of the Japanese-style quality management, education and training of knowledge and quality management, improving employee's satisfaction, improving retention rates and the participation of all employees, are necessary and indispensable.

REFERENCES

1. *Burton Watson(2007).The Analects of Confucius. New York, America: Columbia University Press.*
2. *Eizaburonishibori (2000).Quality Management Implementation Act, Tokyo, Japan: JUSE Press.*
3. *Hirai Akiyo(2012). Data Analysis for Education: Psychological Study. Tokyo, Japan: Tokyo Tosho.(In Japanese.)*
4. *Hiroyuki Fukano(1991).A Study on Decision Making in Production and Quality Control(Memorial Issue for Prof. TAKASHI HOSOI), The Gakusen Management Rebiew,4(2), 269-305. (in Japanese)*
5. *Ikuo Kusaba(1997).History of QC Circle activity (<Special Issue> QC Circle activities Past and Future of), Quality, 27(2), 5-12. (in Japanese)*
6. *Ito Makotoichi(2008) .Problem solving Getting Started, Tokyo, Japan: Diamondo, Inc.*
7. *Kazuo Ozeki (1992).how to proceed with management and improvement (QC introductory course 2), Japanese Standards Association. (in Japanese)*
8. *Li, Z. H. (2004). Reading the Analects Today. Beijin, China: Zurich: SDX Joint Publishing Company.*
9. *Mita Masashi (2010).History of Japan and the Deming Prize founder of Dr. Deming ((1) System system, Quality, 40(1), 45-48.(in Japanese)*
10. *Takeshi Nakajo(2008).Basics of TQM, Tokyo, Japan: JUSE Press.*
11. *TaijiSeki(2005).Research on the historical transition of QC Circle activities in China, Quality, 35(3), 379-385. (in Japanese)*
12. *Wenzhen Shi(2015). Confucian System Approach: Problem Construction. Beijing, China: Economy and Management Publishing House. (In Chinese.)*
13. *Yang Wang (2016). A Study on the Problem Consciousness of Japanese TQM in China,International Society for Standardization Studies,the 5th international conference, 105~108. (In Japanese.)*
14. *Yajun Zhong(2006).Quality management of historical development: in the center of the Japanese version TQM, St. Andrew's University Pan-Pacific business review, 7, 117-132. (in Japanese)*
15. *Zenjiro Sawada (1996). Historical Study of production management, Production Management, 3.(1), 59-65. (in Japanese)*
16. *Acknowledgements: Finally, it is up to the deeply respectful gratitude to whom it may concern of this survey eight companies that cooperation gotten China to study.*